

Appl. No.: 10/605,820
Amdt. Dated: 9/30/2004
Reply to Office action of: 07/06/2004

AMENDMENTSTOTHE SPECIFICATION:

Kindly replace paragraph [0015] with the following amended paragraph:

[0015] According to a further aspect of the present invention, there is presented an adjustable head restraint assembly comprising: a mounting post having a horizontal portion; a head restraint portion disposed about said mounting post horizontal portion and further characterized as mounted to at least one spring mounted fixedly about said mounting post horizontal portion; pivoting bracket connecting said head restraint body to said mounting post horizontal portion for enabling said head restraint body to pivot relative to said mounting post; ratcheting means acting between said mounting post and said head restraint body for permitting said head restraint body to pivot in one direction and selectively locking said head restraint body against pivotal movement in the opposite direction, said ratcheting means including a ~~rack~~ ratcheting gear having a plurality of ~~directional~~ teeth and a pawl having a pair of ~~directional~~ teeth containing ends, for selectively alternatively engaging said ~~rack~~ ratcheting gear ~~directional~~ teeth, ~~one a first~~ a first pawl end when engaged allowing movement of the ~~rack~~ ratcheting gear only in one direction and ~~the other~~ a second pawl end when engaged allowing movement of the ~~rack~~ ratcheting gear in the opposite direction only, to control the movement of said head restraint body; and characterized by said ratcheting means comprises; a ratcheting position locking mechanism comprising; a pivoting bracket for mounting an inertia spring connecting rod, an inertia spring pawl connecting rod for mounting one end of a plurality of inertia springs and the non-rack engaging end of a pawl, a plurality of inertia springs, a pawl mounting rod for mounting said pawl to said pivoting bracket, a ~~toothed-rack~~ ratcheting gear mounted on said mounting post horizontal portion upon which said pawl engages as well as linear damping toothed rotary gear in operable engagement with toothed rack to slow the forward motion of said adjustable head restraint assembly during forward positioning; and a ratchet plunger release mechanism comprising; a plunger end, mounted within a mounting sleeve, both being mounted on a plunger rod, said plunger rod moveably mounted through said pivoting bracket and having a plunger end return biasing spring mounted on said plunger rod between the distal end of said mounting

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sleeve and the proximal face of said pivoting bracket to return said plunger end to a forward most position when rearward pressure is removed from said plunger end.

Kindly replace paragraph [0016] with the following amended paragraph:

[0016] According to a further aspect of the present invention, there is presented an adjustable head restraint assembly comprising: a mounting post having a horizontal portion; a head restraint portion disposed about said mounting post horizontal portion and further characterized as mounted to at least one spring mounted fixedly about said mounting post horizontal portion; pivoting bracket connecting said head restraint body to said mounting post horizontal portion for enabling said head restraint body to pivot relative to said mounting post; ratcheting means acting between said mounting post and said head restraint body for permitting said head restraint body to pivot in one direction and selectively locking said head restraint body against pivotal movement in the opposite direction, said ratcheting means including a ~~rack~~ ratcheting gear having a plurality of ~~directional~~ teeth and a pawl having a pair of ~~directional~~ teeth containing ends, for selectively alternatively engaging said ~~rack~~ ratcheting gear ~~directional~~ teeth, ~~one a first~~ pawl end when engaged allowing movement of the ~~rack~~ ratcheting gear only in one direction and ~~the other a second~~ pawl end when engaged allowing movement of the ~~rack~~ ratcheting gear in the opposite direction only, to control the movement of said head restraint body; and characterized by said ratcheting means comprises; a ratcheting position locking mechanism comprising; a pivoting bracket for mounting an inertia spring connecting rod, an inertia spring pawl connecting rod for mounting one end of a plurality of inertia springs, and inertia lock assembly and the non-rack engaging end of a pawl, a plurality of inertia springs, a pawl mounting rod for mounting said pawl to said pivoting bracket, a ~~toothed rack~~ ratcheting gear mounted on said mounting post horizontal portion upon which said pawl engages as well as linear damping toothed rotary gear in operable engagement with toothed rack to slow the forward motion of said adjustable head restraint assembly during forward positioning; and a ratchet plunger release mechanism comprising a plunger end, having a pressure activation unit mounted thereon, said plunger mounted within a mounting sleeve, both being mounted on a plunger rod, said plunger rod moveably mounted through said pivoting bracket and

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having a plunger end return biasing spring mounted on said plunger rod between the distal end of said mounting sleeve and the proximal face of said pivoting bracket o return said plunger end to a forward most position when rearward pressure is removed from said plunger end.

Kindly add the following new paragraph after paragraph [0020]:

[0020.1] Figure 4 shows a partial perspective rear view of the ratcheting head restraint of the present invention utilizing a fluid damper.

Kindly replace paragraph [0023] with the following amended paragraph:

[0023] As further shown in Figure 1 the ratcheting position locking mechanism 20 comprises a pivoting bracket 1 for mounting an inertia spring connecting rod 2, a inertia spring pawl connecting rod 3, inertia springs 4, and pawl mounting rod 6 for mounting pawl 5 to pivoting bracket 1. The ratcheting position locking mechanism 20 is mounted on head restraint post 11 in operable interaction with a ~~toothed~~ ratcheting gear rack 13 upon which pawl 5 engages as well as linear damping toothed rotary gear 14 in operable engagement with ~~toothed~~ ratcheting gear rack 13 to slow the forward motion of the head restraint during forward positioning.

Kindly replace paragraph [0025] with the following amended paragraph:

[0025] Finally, Figure 1 shows a pair of springs 12 mounted on the head restraint post 11 and connected to the head restraint body (not shown in ~~phantom~~) to provide movement of the head restraint corresponding to movement of the position locking mechanism thereby allowing positioning and position locking of the head restraint. In another preferred embodiment there is also mounted an inertial lock assembly 17 which assures that during a collision the head restraint assembly can not move rearward.

Kindly replace paragraph [0026] with the following amended paragraph:

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[0026] Referring now to Figure 2, there is shown a perspective rear view of the ratcheting position locking mechanism 20 including a section of the head restraint post 11 upon which is mounted pivoting bracket 1. Also mounted on head restraint post 11 is ~~teethed~~ ratcheting gear ~~rack~~ 13 to which is engaged linear damping toothed rotary gear 14. Further there is shown the connection of the plunger rod 7 to pawl 5 through the use of pawl connecting rod 3, and pawl 5 is mounted to pivoting bracket 1 by means of pawl mounting rod 6. Inertia springs 4 are each connected by one of their ends to pawl connecting rod 3 and by each of their other ends to inertia spring connecting rod 2 mounted to pivoting bracket 1. ~~The inertia springs 4 being normally in a closed or compressed condition cause the plunger 7 to be normally in a rearward or retracted condition and pawl 5 to be in a normally engaged condition with respect to teethed ratcheting rack 13.~~

Kindly replace paragraph [0027] with the following amended paragraph:

[0027] Turning now to Figure 3, there is shown a plan side view of the pawl 5 and ~~teethed~~ ratcheting gear ~~rack~~ 13 engagement and the operable connections of the various parts of the present invention. Pawl 5, shown in a preferred embodiment, has two ~~rack~~ gear-engaging ends 5A and 5B that control the direction of movement of ratcheting gear ~~rack~~ 13. Particularly there is shown plunger 7 having mounted on its forward or proximal end, ~~from its forward end,~~ plunger end 9, mounting sleeve 8, and plunger end return biasing spring 10. Spring 10 has a normally extended condition to hold the plunger end 9 in its forward position until depressed by the movement of an occupants head. On the rearward or distal end of plunger 7 ~~there~~ is moveably mounted to the upper ~~or non-rack~~ engaging ends of pawl 5 by means of pawl connecting rod 3. Pawl 5 is pivotally connected to pivoting bracket 1 (not shown) by means of pawl mounting rod 6. The lower ~~or rack-engaging end of pawl end 5A~~ B is normally engaged with ~~teethed~~ ratcheting gear ~~rack~~ 13 by a plurality of ~~one-way~~ teeth located on said lower end of pawl 5A. The ~~teethed~~ ratcheting gear ~~rack~~ 13 is also shown mounted on head restraint post 11. Permanently engaged in ~~teethed~~ ratcheting gear ~~rack~~ 13 is linear damping ~~teethed~~ rotary gear 14 used to control the speed of the forward motion of plunger 7 when the pawl ends 5A and 5B ~~is~~ are disengaged, and pawl end 5A from ~~teethed~~ ratcheting gear ~~rack~~ 13.

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Also shown is an inertia spring 4 connected at one end to pawl connecting rod 3 and at its other end to spring connecting rod 2. Optional pressure plate 18 is shown operably connected to plunger 9.

Kindly add the following new paragraph after paragraph [0027]:

[0027.1] Turning it Figure 4 there is shown a perspective rear view of the ratcheting position locking mechanism 20 including a section of the head restraint post 11 upon which is mounted pivoting bracket 1. Also mounted on head restraint post 11 is ratcheting gear 13 to which is engaged linear damping toothed rotary gear 14. Further there is shown the connection of the plunger rod 7 to pawl 5 through the use of pawl connecting rod 3, and pawl 5 is mounted to pivoting bracket 1 by means of pawl mounting rod 6. Fluid damper 17 is operatively connected to linear damping toothed rotary gear 14 regulating the speed of movement of linear damping toothed rotary gear 14. Inertia springs 4 are each connected by one of their ends to pawl connecting rod 3 and by each of there other ends to inertia spring connecting rod 2 mounted to pivoting bracket 1.

Kindly replace paragraph [0028] with the following amended paragraph:

[0028] In practice, the head restraint of the present invention is in a most rearward position upon the top of the seat back of a seat. The occupant of the seat applies an activating force or pressure rearward against the head restraint surface causes the head rest plunger end 9 and plunger 7 to move rearward which in turn causes the upper end of the pawl 5 to move rearward pivoting on pawl mounting rod 6 thereby causing the lower pawl toothed end 5AB to disengage from the ~~toothed~~ ratcheting gear ~~rack~~ 13 and lower pawl toothed end 5BA to engage, freeing the head restraint and allowing the head restraint to move forward, the speed of the forward movement of the head restraint being governed by the linear damping toothed rotary gear 14. When the head restraint comes either to its forward most position or the occupant releases pressure against the head restraint plunger end 9, the spring 4 causes the pawl end 5BA to disengage and pawl end

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5A~~B~~ to re-engage with the ~~teethed~~ ratcheting gear rack 13 locking the head restraint in position.

Kindly replace paragraph [0029] with the following amended paragraph:

[0029] Materials suitable for use in the present invention are well known in the art including, for example, metal and polymeric compositions. Presently preferred materials for the spring connecting rod 2, pawl connecting rod 3, and pawl mounting rod 6 is solid steel rod, for pivoting bracket 1 plated spring steel, for inertia springs 4, plunger end return biasing spring 10 and springs 12 plated steel springs, for pawl 5, plunger 7, mounting sleeve 8, plunger end 9, head restraint post 11, and ~~teethed~~ ratcheting gear rack 13 high strength steel. The presently preferred material for linear damping toothed rotary gear 14 is molded plastic.